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Case 6768CD

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of ::
Kevin L. Kott et al. ::
Serial No. Not Yet Assigned :: Group Art Unit 1751
Filed October 22, 2001 :: Examiner Not Yet Assigned
For: IMPROVED ALKYL BENZENESULFONATE SURFACTANTS

PRELIMINARY AMENDMENT

Commissioner for Patents
Box PATENT APPLICATION
Washington, D.C. 20231

Dear Sir:

Before computing the fees for filing this Divisional of U.S. Application Serial No. 09/479,365, please enter the following amendments.

AMENDMENTS

IN THE TITLE

Please replace the current Title with the following new Title:

IMPROVED ALKYLARYLS

IN THE SPECIFICATION

Page 1, before "FIELD OF INVENTION", please insert the following paragraph:

CROSS REFERENCE

This is a divisional under 35 USC §120 of U.S. Application Serial No. 09/479,365 filed January 7, 2000, which is a continuation of PCT International Application Serial No. PCT/IB98/01103, filed July 20, 1998; which claims priority to Provisional Application Serial No. 60/053,321, filed July 21, 1997.

Page 3, line 14, please delete "US 5,510,306"; lines 14-15, please delete "4,031,316; 4,301,317; 4,855,527; 4,870,038; 5,026,933".

IN THE CLAIMS

Please cancel Claims 1 to 9, without prejudice and insert the following new Claims:

10. An alkylaryl composition suitable as a source for making alkylarylsulfonate surfactants, wherein said composition comprises at least two isomers of an alkylaryl of the formula:



wherein:

L is an acyclic aliphatic hydrocarbyl of from 6 to 18 carbon atoms in total;

R' is selected from H and C₁ to C₃ alkyl;

R'' is selected from H and C₁ to C₃ alkyl;

both R' and R'' are nonterminally attached to L and at least one of R' and R'' is C₁ to

C₃ alkyl;

R''' is selected from H and C₁ to C₃ alkyl; and

A is aryl

wherein:

said alkylaryl composition comprises two or more isomers with respect to positions of attachment of R', R'' and A to L;

in at least about 60% of said alkylaryl composition, A is attached to L in the position which is selected from positions alpha- and beta- to either of the two terminal carbon atoms thereof; and

wherein further said alkylaryl composition has at least one of the following properties:

said alkylaryl composition has a ratio of nonquaternary to quaternary carbon atoms in L of at least about 10:1 by weight, when said quaternary carbon atoms are present; and

there is no more than 40% by weight loss as measured by Hardness Tolerance Test.

11. The alkylaryl composition according to Claim 10 wherein there is no more than 20% by weight loss as measured by Hardness Tolerance Test.

12. The alkylaryl composition according to Claim 10 wherein A is selected from the group consisting of:

- i) benzene;
- ii) toluene;
- iii) xylene;
- iv) naphthalene; and
- v) mixtures thereof.

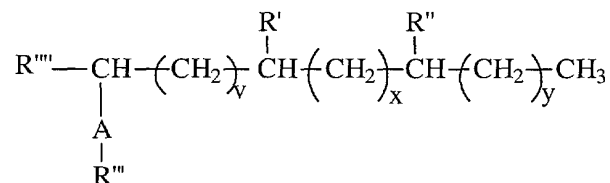
13. The alkylaryl composition according to Claim 12 wherein A is benzene.

14. The alkylaryl composition according to Claim 12 wherein A is toluene.

15. The alkylaryl composition according to Claim 10 wherein one of R' and R'' is methyl or ethyl.

16. The alkylaryl composition according to Claim 11 wherein one of R' and R'' is methyl.

17. An alkylaryl composition suitable as a source for making alkylarylsulfonate surfactants, wherein said composition comprises at least two isomers, counted exclusive of ortho-, meta-, para-, and stereoisomers, of an alkylaryl of the formula:



wherein A is aryl; R''' is selected from H and C₁ to C₃ alkyl; R' is selected from hydrogen and C₁ to C₃ alkyl; R'' is selected from hydrogen and C₁ to C₃ alkyl; and R''' is selected from hydrogen and C₁ to C₄ alkyl; v is an integer from 0 to 10; x is an integer from 0 to 10; y is an integer from 0 to 10;

wherein:

the total number of carbon atoms attached to A is less than about 20;

said alkylaryl composition comprises two or more isomers with respect to positions of attachment of R', R'' and A to the moiety

R'''-C(-)H(CH₂)_vC(-)H(CH₂)_xC(-)H(CH₂)_y-CH₃ of this formula;

at least one of R' and R'' is C₁ to C₃ alkyl; when R''' is C₁, the sum of v + x + y is at least 1; and when R''' is H, the sum of v + x + y is at least 2; and

in at least about 60% of said alkylaryl composition, A is attached to the moiety

R'''-C(-)H(CH₂)_vC(-)H(CH₂)_xC(-)H(CH₂)_y-CH₃ in the position which is selected from positions alpha- and beta- to either of the two terminal carbon atoms thereof;

wherein further said alkylaryl composition has at least one of the following properties:

said alkylaryl composition has a ratio of nonquaternary to quaternary carbon atoms in the moiety

R'''-C(-)H(CH₂)_vC(-)H(CH₂)_xC(-)H(CH₂)_y-CH₃ of at least about 10:1 by weight,

when said quaternary carbon atoms are present; and

there is no more than 40% by weight loss as measured by Hardness Tolerance Test.

18. The alkylaryl composition according to Claim 17 wherein there is no more than 20% by weight loss as measured by Hardness Tolerance Test.

19. The alkylaryl composition according to Claim 17 wherein A is selected from the group consisting of:

- i) benzene;
- ii) toluene;
- iii) xylene;
- iv) naphthalene; and
- v) mixtures thereof.

20. The alkylaryl composition according to Claim 19 wherein A is benzene.

21. The alkylaryl composition according to Claim 19 wherein A is toluene.

22. The alkylaryl composition according to Claim 17 wherein one of R' and R" is methyl or ethyl.

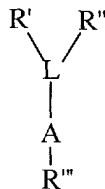
23. The alkylaryl composition according to Claim 17 wherein one of R' and R" is methyl.

24. The alkylaryl composition according to Claim 17 wherein at least about 80% of said alkylaryl composition, A is attached to $R'''-CH(CH_2)_vCH(CH_2)_xCH(CH_2)_y-CH_3$ in the position which is selected from positions alpha- and beta- to either of the two terminal carbon atoms thereof.

25. The alkylaryl composition according to Claim 17 wherein R''' is hydrogen, methyl or ethyl.

26. An alkylaryl composition suitable as a source for making alkylarylsulfonate surfactants, wherein said composition comprises:

a) from about 0.01% to about 99.99% by weight of an alkylaryl composition comprising at least two isomers of an alkylaryl of the formula:



wherein:

L is an acyclic aliphatic hydrocarbyl of from 6 to 18 carbon atoms in total;

R' is selected from H and C₁ to C₃ alkyl;

R'' is selected from H and C₁ to C₃ alkyl;

both R' and R'' are nonterminally attached to L and at least one of R' and R'' is C₁ to C₃ alkyl;

R''' is selected from H and C₁ to C₃ alkyl; and

A is aryl

wherein:

said alkylaryl composition comprises two or more isomers with respect to positions of attachment of R', R'' and A to L;

in at least about 60% of said alkylaryl composition, A is attached to L in the position which is selected from positions alpha- and beta- to either of the two terminal carbon atoms thereof; and

wherein further said alkylaryl composition has at least one of the following properties:

said alkylaryl composition has a ratio of nonquaternary to quaternary carbon atoms in L of at least about 10:1 by weight, when said quaternary carbon atoms are present; and

there is no more than 40% by weight loss as measured by Hardness Tolerance Test; and

b) from about 0.01% to about 99.99% by weight of at least one isomer of the linear analog of said alkylaryl (a).

27. The alkylaryl composition according to Claim 26 wherein at least about 80% of said alkylaryl composition, A is attached to L in the position which is selected from positions alpha- and beta- to either of the two terminal carbon atoms thereof.

28. The alkylaryl composition according to Claim 26 wherein there is no more than 20% by weight loss as measured by Hardness Tolerance Test.

29. The alkylaryl composition according to Claim 26 wherein A is selected from the group consisting of:

- i) benzene;
- ii) toluene;
- iii) xylene;
- iv) naphthalene; and
- v) mixtures thereof.

30. The alkylaryl composition according to Claim 29 wherein A is benzene.

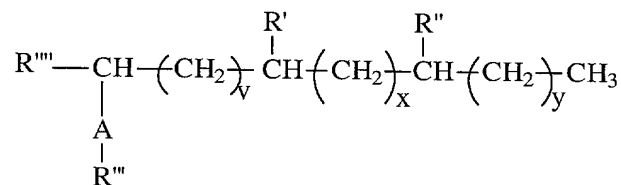
31. The alkylaryl composition according to Claim 29 wherein A is toluene.

32. The alkylaryl composition according to Claim 26 wherein one of R' and R" is methyl or ethyl.

33. The alkylaryl composition according to Claim 32 wherein one of R' and R" is methyl.

34. An alkylaryl composition suitable as a source for making alkylarylsulfonate surfactants, wherein said composition comprises:

- a) from about 0.01% to about 99.99% by weight of an alkylaryl composition comprising at least two isomers, counted exclusive of ortho-, meta-, para- and stereoisomers, of an alkylaryl of the formula:



wherein A is aryl; R''' is selected from H and C₁ to C₃ alkyl; R' is selected from hydrogen and C₁ to C₃ alkyl; R'' is selected from hydrogen and C₁ to C₃ alkyl; and R''' is selected from hydrogen and C₁ to C₄ alkyl; v is an integer from 0 to 10; x is an integer from 0 to 10; y is an integer from 0 to 10;

wherein:

the total number of carbon atoms attached to A is less than about 20;

said alkylaryl composition comprises two or more isomers with respect to positions of attachment of R', R'' and A to the moiety

R'''-C(-)H(CH₂)_vC(-)H(CH₂)_xC(-)H(CH₂)_y-CH₃ of this formula;

at least one of R' and R'' is C₁ to C₃ alkyl; when R''' is C₁, the sum of v + x + y is at least 1; and when R''' is H, the sum of v + x + y is at least 2; and

in at least about 60% of said alkylaryl composition, A is attached to the moiety

R'''-C(-)H(CH₂)_vC(-)H(CH₂)_xC(-)H(CH₂)_y-CH₃ in the position which is selected from positions alpha- and beta- to either of the two terminal carbon atoms thereof;

wherein further said alkylaryl composition has at least one of the following properties:

said alkylaryl composition has a ratio of nonquaternary to quaternary carbon atoms in the moiety

R'''-C(-)H(CH₂)_vC(-)H(CH₂)_xC(-)H(CH₂)_y-CH₃ of at least about 10:1 by weight,

when said quaternary carbon atoms are present; and

there is no more than 40% by weight loss as measured by Hardness Tolerance Test; and

b) from about 0.01% to about 99.99% by weight of at least one isomer of the linear analog of said alkylaryl (a).

35. The alkylaryl composition according to Claim 34 wherein there is no more than 20% by weight loss as measured by Hardness Tolerance Test.

36. The alkylaryl composition according to Claim 34 wherein A is selected from the group consisting of:

- i) benzene;
- ii) toluene;
- iii) xylene;
- iv) naphthalene; and
- v) mixtures thereof.

37. The alkylaryl composition according to Claim 36 wherein A is benzene.

38. The alkylaryl composition according to Claim 36 wherein A is toluene.

39. The alkylaryl composition according to Claim 34 wherein one of R' and R'' is methyl or ethyl.

40. The alkylaryl composition according to Claim 39 wherein one of R' and R'' is methyl.

41. The alkylaryl composition according to Claims 34 wherein at least about 80% of said alkylaryl composition, A is attached to $R'''-CH(CH_2)_vCH(CH_2)_xCH(CH_2)_y-CH_3$ in the position which is selected from positions alpha- and beta- to either of the two terminal carbon atoms thereof.

42. The alkylaryl composition according to Claim 34 wherein R''' is hydrogen, methyl or ethyl.

Remarks

The support for these amendments is found in the Specification and Claims as originally filed. These amendments are being entered to bring the Claims into conformance with, *inter alia*, 37 CFR §1.75; no new matter is added.

Respectfully submitted,

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